



TWG

CMMS Progress Report and Demo



AGENDA

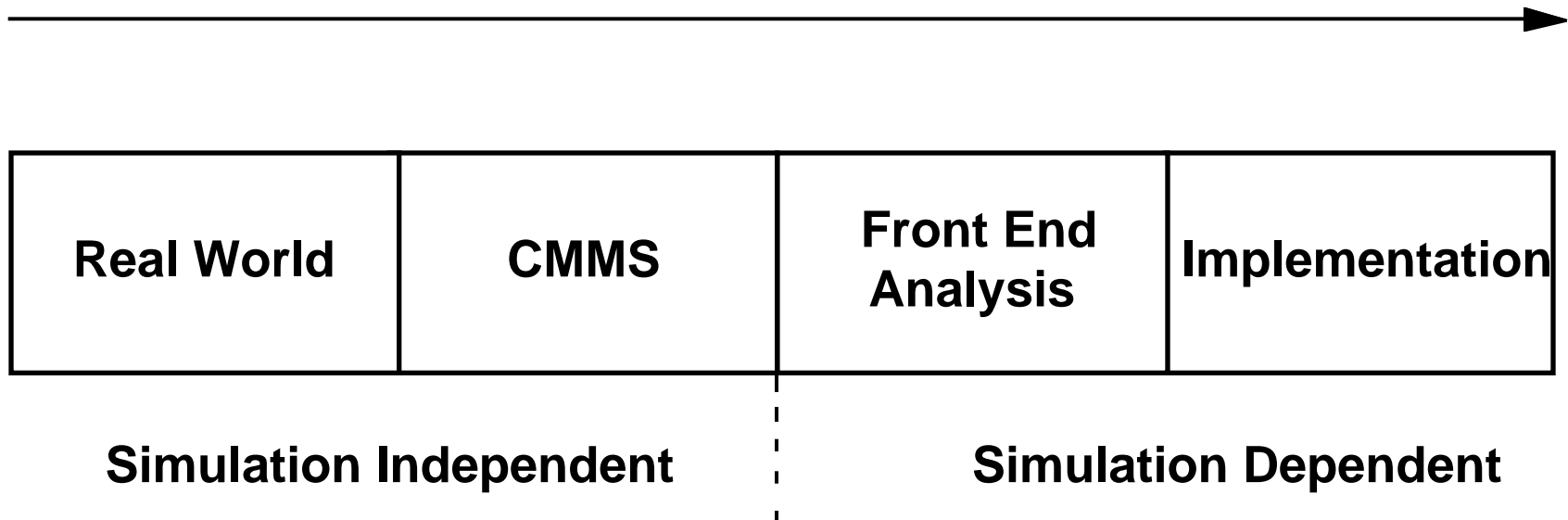
T W G

9:00	-	9:15	DMSO	Introduction/CMMS Prototype Contract
9:15	-	9:45	J. Sheehan	Technical Framework Update/DIF
9:45	-	10:05	SAIC	Demonstration
10:05	-	10:25	S3I	Demonstration
10:25				Break
10:40	-	11:00	DRC	Demonstration
11:00	-	11:30	CDR Purser	Navy CMMS Working Group
11:30	-	12:30	Programs	Common knowledge acquisition/ authoritative data sources
12:30	-	1:30		Lunch Break/End of CMMS TWG
1:30	-	4:00	CSWG	Organizational meeting; tools evaluation



Conceptual Models of the Mission Space

Simulation Development Process





What is a CMMS?

- A high level, hierarchical representation of the interactions and actions of combat entities in each mission space
- An authoritative first abstraction of the real world
- A common framework for knowledge acquisition
 - Validated, relevant actions and interactions organized by specific task and entity/ organization
 - Standard format for expression



CMMS Program

T W G

- **Technical Working Group**
 - JSIMS, JWARS, STOW, WARSIM, BFTT, NASM, J-7, JWFC
 - Coordination of community efforts
- **Technical Support Team**
 - Develop CMMS technical framework
 - With DIF (Data Interchange Format) program, develop minimum required semantic and syntax standards to facilitate the integration of knowledge acquisition products
- **Just completed Experiment Phase**
 - Research and operating software in all CMMS components
 - One-year Rapid Prototype Phase begins 1 April
- **Full development of CMMS structure beginning in '97**
- **Fill by extraction from knowledge as development occurs in major simulation programs (JSIMS, JWARS, WARSIM, NASM)**

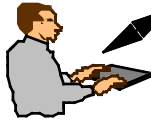


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CMMS Prime Components

INFORMATION SOURCES

WRITTEN
Doctrine
UJTL
CINC JMETL
Service tasks
ORAL
Warfighter



KA Analysts

DIF

CAPTURED KNOWLEDGE

Feedback to
authoritative
sources



CMMS
Users

USER INTERFACES

- MULTIPLE USER-REQUESTED VIEWS
ORGANIZATION
STRUCTURE
TASK STRUCTURE
MODEL OF
INTERACTIONS
VISUALIZATION OF
COMBAT PROCESS
- PERFORMANCE DEMANDS
RESPONSE TIME
REFRESH RATE
- USER-FRIENDLINESS

DATABASE

- CMMS ELEMENTS:
ENTITIES
ACTIONS
INTERACTIONS
- POINTERS TO:
KNOWLEDGE
ACQUISITION
HISTORY
AUTH. SOURCES
APPLICABLE MODELS
AND SIMULATIONS

MANAGEMENT PROCESS/TOOLS

- CMMS ELEMENT
INTEGRATION
- WARFIGHTER
APPROVAL
- FUNCTIONAL AREA
MISSION SPACE MGT
- RESOURCE/TOOL
MANAGEMENT

KNOWLEDGE CONVERSION PROCESS/TOOLS

- CHECK SOURCE, FORMAT,
CONTENT
- EXTRACT CMMS
ELEMENTS
- DEFICIENCY CORRECTION
- TOOL GUIDANCE
- STORE IN TEMPORARY
DATABASE
- CONVERT CMMS
ELEMENTS FOR EXPORT

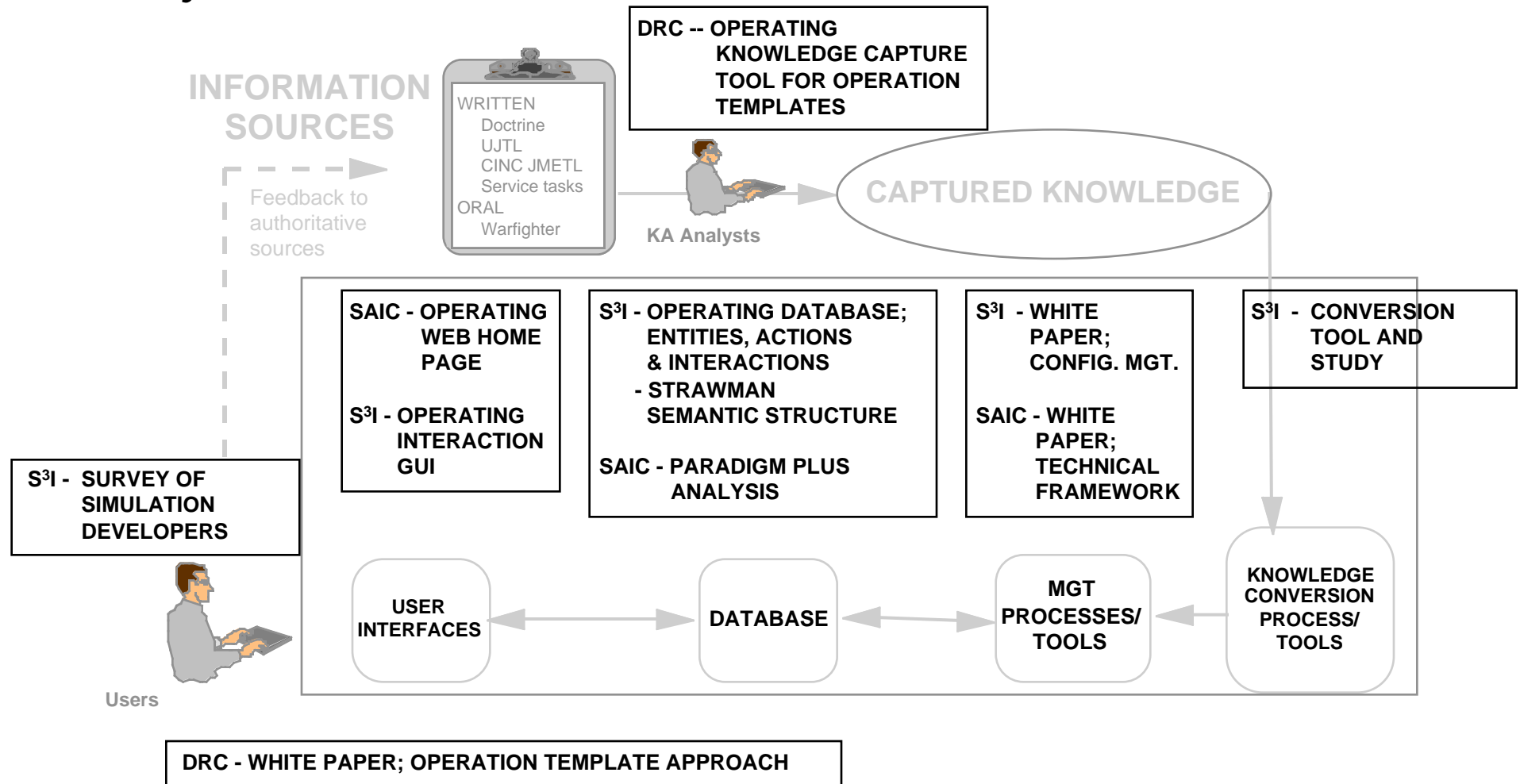
CMMS SYSTEM

Data comprising CMMS resides in and is accessible through the MSRR



CMMS Experiment Phase

DRC, S3I and SAIC explored each area of the CMMS process with very limited data fill





Prototype Task

- **Contractor team selected**
 - Software development capability
 - Combat mission space experience and connectivity
 - UJTL applications
- **Rapid prototyping development**
 - 2 spirals of development and user feedback
 - Generate understanding of requirements for fully operational CMMS
- **Each spiral**
 - Requirements analysis
 - Architecture analysis
 - Design/code
 - Demonstration and feedback from prospective users
- **Final report**



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CMMS Prototype Phase

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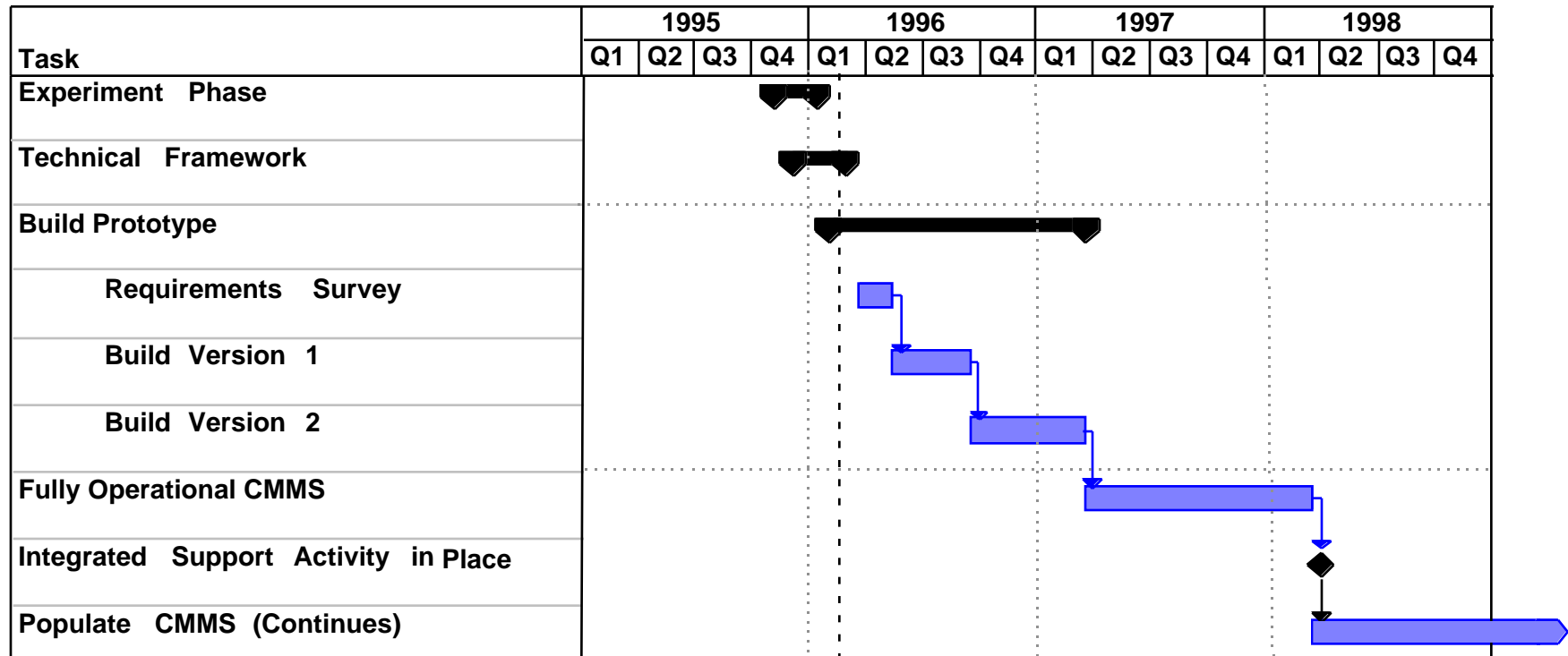
Contractor will integrate functions from all components into the prototype



Long Range Schedule

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CMMS EXECUTION





Concrete Results of CMMS Efforts

- **JSIMS and JWARS have agreed to work together in knowledge acquisition and domain analysis**
- **JSIMS may leverage NASM business process re-engineering efforts**
- **Data Interchange Format (DIF) effort may provide far-reaching standardization results**
- **CMMS experiments will provide simulation developers useful ideas and products, saving time and money**
 - **JWARS now working with CMMS contractor**
 - **WARSIM prototyping an event view using NASM Domain Analysis methods**
 - **Operation Template capture tool available to developers**